

**ABSTRACT**

A predictive method and apparatus are disclosed for selecting an antenna to use in a multi-antenna wireless device. A predictive antenna selector predicts the best antenna (for both receiving and transmitting signals) based on the signal quality of the antenna for prior received frames. The quality of each antenna is evaluated, for example, in a random order, round robin fashion or according to some equal or weighted schedule. The signal quality can be evaluated for a given antenna during a preamble portion of a frame or for any frame up to an entire frame duration. A given antenna can be removed from the signal quality evaluation (for example, to a bad antenna list) if the given antenna fails to satisfy one or more predefined criteria, such as whether a signal quality of a given antenna is below a signal quality of a remainder of the plurality of antennas by a predefined amount. The signal quality of antennas on the bad antenna list can be reevaluated to determine when to return a removed antenna to the plurality of antennas that are evaluated.

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